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NEW PONERINE ANTS FROM EQUATORIAL AFRICA

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Descriptions of new species in the genera *Discothyrea*, *Probolomyrmex*, *Centromyrmex*, and *Asphinctopone* are presented in the present paper. They are rare, archaic relicts of interest to the student of zoogeography, while the blind *Centromyrmex* has striking adaptations for locomotion in subterranean termite nests and for preying on these insects. The genera have not previously been taken outside of coastal west Africa or south Africa, and the present records extend the range markedly east or north to indicate that the species represent remnants of an ancient continental distribution.

The genus *Discothyrea* has a tropicopolitan distribution and includes New Zealand, which must have acquired it before or in the Mesozoic. The genus *Probolomyrmex*, in the same tribe, Proceratiini, has hitherto been known from a species represented by west and south African specimens, a species in Java, one in Bolivia, and two in Panama. The genus *Centromyrmex*, of the tribe Ponerini, is known from a species in Rhodesia, Angola, and Portuguese East Africa, and a second species from Cameroon as well as from the Neotropical and Indo-Malayan regions. The new species, like the Indo-Malayan *feae* Emery, is probably an obligatory predator on termites. The worker was helpless when exposed to the light and seemed incapable of locomotion on the ground. The genus *Asphinctopone*, of the tribe Ponerini, has hitherto been known from one worker taken in Nigeria in 1912. The finding of a second specimen in east central French Equa-

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torial Africa confirms the generic diagnosis and adds a distinct second species.

The ants were collected less than 5 degrees from the Equator on the Central African Expedition of the American Museum of Natural History, Dr. James L. Clark, Leader, by me as the expedition biologist. The holotypes are deposited in the collections of this museum.

Discothyrea patrizzii, new species

FEMALE (DEALATE): Length 1.7 mm., of thorax 0.52 mm. Head in front view, excluding mandibles, one and one-fifth times longer than broad back of eyes; occipital margin truncate, corners broadly rounded, sides feebly convex and converging slightly anteriorly, anterior clypeal margin produced as a broadly convex lobe over the bases of the mandibles; eyes blackish, about 0.09 mm. in diameter, convex, situated closer to the mandibular bases than their diameters; ocelli large and prominent; frontal carinae fused and vertical, produced as a semicircular lobe; mandibles short, stout, and convex, with a single long, acute apical tooth and a straight, seemingly minutely denticulate, cutting margin; antennae eight-segmented, scapes as usually held attain a level with the middle of the eyes, terminal funicular segment 0.19 by 0.11 mm.; one and two-thirds longer than the remainder of the funicular segments taken together, the entire funiculus 0.34 mm. long and slightly shorter than the scape. Thorax from above with pronotum evenly convex in front, epinotal angles feebly tuberculate; in side view with evenly convex pronotum passing posteriorly into a plane remainder, the epinotal declivity concave. Petiole in side view with high scale convex in front, concave behind, ventral surface produced in a U-shaped lamella. Gaster from above with only the first and second segments visible, anterior margin truncate, sides subparallel and feebly convex, posterior margin evenly rounded; sting stout and exserted from completely retracted terminal segments. Legs slender and of moderate proportions.

Dull, densely punctate, producing a coriaceous effect which in strong light is sub-lucid. Pilosity consisting solely of a minute, short, appressed pubescence generally distributed over the body.

Yellowish brown, margins of the segments darker, ocelli and eyes on separate blackish spots.

WORKER: Length extended 1.6 mm., of thorax 0.45 mm. Head in front view, excluding mandibles, one and one-third times longer than broad, occipital margin truncate, angles broadly rounded, sides convex and converging slightly to the clypeus which is produced anteriorly as a broadly convex lobe over the mandibles; eyes blackish, about 0.04 mm. in diameter, situated less than two of their diameters from the bases of the mandibles; antennae short and stout, scape clavate, terminal segment of funiculus 0.20 by 0.11 mm. and longer than the preceding funicular segments taken together; frontal carinae fused and vertical, produced as a convex lobe; mandibles short, stout, convex. Thorax in side view evenly convex above, angulate at the epinotum, with feebly concave declivous surface; viewed from above with straight sides converging behind from the evenly convex anterior pronotal margin, epinotum angulate at the corners and slightly concave between. Petiolar scale in side view thick, convex anteriorly, ventral surface produced in an evenly convex lobe directed slightly forward; viewed from above transversely rectangular, sides rounded as even convexities converging forward, so broader behind than in front, approximately 0.19 by 0.09 mm.

Sculpturing, pilosity, and color as in the female.

HOLOTYPE: One female taken February 5, 1948, in approximately latitude 01° 38′ S., longitude 35° 17′ E., Kenya. The ant came from the floor cover of leaves and humus of a densely wooded donga or ravine of the high (5500–5800 feet) east African plains.

ERGATOTYPE: One worker taken in 1945 in Nairobi, Kenya, by Saverio Patrizzi.

The eight-segmented antennae separate this species readily from the nine-segmented *hewitti* Arnold, *oculata* Emery, and *traegaordhi* Emery, as does also the smaller size. The lobate fused frontal carinae of *hewitti* are produced as a triangular plate.

Probolomyrmex parvus, new species

FEMALE (DEALATE): Length extended 2.06 mm.; of thorax 0.67 mm. Head in front view, including the scarcely visible mandibles, one and one-third times longer than broad, occipital margin truncate, corners broadly rounded, sides subparallel, feebly convex, clypeus produced anteriorly as a convex lobe be-

neath which the external margin of the mandibles is barely visible; ocelli prominent; eyes convex, situated in front of middle of head; frontal carinae fused and produced as a vertical, rounded, nearly right-angled lobe; mandibles short, stout, convex; antennal scapes short, stout, clavate, slightly bowed out, attaining a level just behind the posterior margin of the eyes, funicular segments 2–11 gradually increasing in size and forming an indistinctly four-segmented club. Thorax from above broadest through the pronotum which is convex anteriorly, the epinotum with feebly convex sides and sharply emarginate posteriorly; thorax in side view with pronotum rising sharply to a small convexity forming an angle with the general broadly convex dorsal surface, epinotum with short, feebly convex basal surface forming a rounded, obtuse angle with the angulately concave declivous surface. Petiole not pedunculate in front and forming a peduncle behind the node formed in part by the articulation with the gaster, from above with node convex in front and marginately concave behind, in side view with node rising in an even convexity to the posterior surface and making an acute angle with it, descending posteriorly in a concavity, ventral surface with a large angulate lobe which is straight anteriorly and posteriorly. Gaster from above with first segment smaller than the second and constricted from it, narrowed to the truncate anterior margin; segments following the second not visible from above, sting not exserted in the specimen. Legs moderately long and slender.

Sub-lucid, finely and densely punctate with a coriaceous appearance. Pilosity consisting of a dense, pale yellow, appressed pubescence evenly covering the body.

Body a dull, pale brown with infuscated sutures, legs more yellowish brown.

HOLOTYPE: One worker taken February 17, 1948, just within Uganda at Busnia on the Kenya-Uganda border. The ant was among humus and leaves, at the base of a tree with a few bushes forming an island in a banana plantation.

This species differs markedly from the only African species recorded, *filiformis* Mayr of south and west Africa. It is much smaller, has the clypeus less extended over the mandibles, the epinotum more angulate, and the petiolar node thinner.

Centromyrmex congolensis, new species

WORKER: Extended length 6.3 mm.; of thorax 1.8 mm. Head in front view squarish, exluding mandibles one and one-sixth times broader than long, occipital margin truncate, feebly concave, corners rounded anteriorly, anterior clypeal margin produced in a broad, truncate lobe; frontal lobes short, feebly convex; eyeless; mandibles falcate, outer margin broadly convex, cutting margin about twice as long as inner basal margin and with about 10 feeble and irregularly spaced denticles, apex in the form of an acute tooth; antennal scapes long and slender, slightly exceeding the occipital corners, gradually enlarged and bowed distally, first funicular segment longer than the following two segments taken together, following segments gradually thickening and lengthening to an indistinctly four- or five-segmented club, terminal segment equal in length to the three preceding ones taken together. Thorax from above with evenly convex pronotal margin, the pronotum being transversely crescent shaped, promesonotal suture marked and impressed, meso-epinotal region broadly and smoothly impressed, the lateral impressions rising obliquely forward to meet at an angle, thus isolating the epinotum as a rounded node; thorax in side view with pronotum rising sharply to form a slightly obtuse angle, mesonotum rising sharply above the pronotum and smoothly sloping into the meso-epinotal impression, the latter broad and saddle shaped, epinotum in the form of a large, convex tubercle. Petiole from above with narrow, distinct peduncle and large node which is broader than long, broader behind than in front and with truncate posterior margin; in side view with node evenly convex above and ventral surface with a short, acute spine forwardly directed. Gaster elongate-ovate with sharply truncate anterior margin and convex anterior angles; five segments exposed dorsally, of which the fifth is more constricted from the preceding than any others; sting long and exserted. Legs short and stout, the coxae strongly incrassate, the femora less so, middle tibia covered with sharp spines, the others with far fewer and more slender spines, tarsi spinose.

Shining; head finely striate-punctate, the frons largely smooth except for piligerous punctations, thorax with similar piligerous punctations, and irregularly striate, gaster and appendages smooth except for the same piligerous punctations.

Pilosity of yellow, upright hairs of variable lengths, clypeus

with two long, fine hairs projecting over the mandibles, inner surface of mandibles below the denticles with shorter hairs, entire surface generally with scattered hairs; pubescence confined to the legs distally and the funiculi.

Brownish yellow, appendages slightly darker.

HOLOTYPE: One worker taken March 1, 1948, at Niangara, Belgian Congo. It was just beneath the soil surface under a thin cover of dead leaves of mango and oil palm. The ant seemed completely helpless when exposed to the daylight and writhed about when placed on the ground or in my palm. It made no attempt to run away, curling and uncurling without stinging, though it had a long, stout sting. Obviously its habitat was exclusively hypogeic, as the lack of eyes also indicates.

This remarkable ant has its middle tibia much more spinose than the fore and hind tibia, while the fore tibia is much more massive and differently proportioned compared with the others. It is possible that these structures, together with the generally stout legs, including large, globose coxae, protect the legs from being severed at any point by the strong mandibles of soldier termites. They are adapted for locomotion through the tenuous galleries of termites, where the ants may encounter their prey. The pair of hairs on the anterior clypeal margin and the short, stout hairs below the denticles on the mandibles must serve a sensory purpose to inform the ant when it has moving prey to seize. The scattered hairs over the entire surface are also doubtless sensory in lieu of eyes.

From *C. constanciae* Arnold of Rhodesia the present species differs distinctly in larger size, in less angular thorax and epinotum, and in other ways. It appears to differ from *C. sellaris* Mayr of the Cameroons in larger size (*sellaris* is given as 5.3 mm., and Santschi remarks that his specimens are still smaller) and in other ways though comparison is difficult because Mayr's description consists primarily of a comparison with an Indo-Malayan species, *feae* Emery.

This Indo-Malayan species has been repeatedly taken from the nests of termites, including the fungus-grower *Microtermes pallidus* Haviland, *Termes* species, *Odontotermes javanicus* Holmgren, *Capritermes* species, *Nasutitermes* species; and as the variety *ceylonicus* Forel in nests of *Heterotermes ceylonicus* Holmgren.

Asphinctopone lucidus, new species

WORKER: Extended length 3.5 mm.; of thorax (including neck) 1.1 mm. Head in front view, excluding mandibles, one and one-fifth times longer than broad, occipital margin feebly convex, corners broadly rounded, sides feebly convex; clypeus with a median carina which projects slightly over the anterior margin, the latter otherwise slightly concave medially and produced laterally on each side as an obtuse angle which projects over the cutting margin of the mandibles; frontal lobes fused, flat, short, and convex; eyes about 0.04 mm. in diameter, situated at the sides about four of their diameters from the base of the mandibles; mandibles narrow, triangular, evenly convex on their lateral margins, with five or six teeth exposed beyond the clypeal lobe; antennal scapes distinctly exceeding occipital angles, slender, slightly enlarged distally, slightly longer than the funiculus to the terminal segment, funiculus with three-segmented club equal in length to the preceding seven taken together. Thorax from above with well-developed neck, behind which the pronotum rises as an even convexity and is broader than the remainder of the thorax; mesonotum small and transversely elliptical, well marked from the pronotum and epinotum; meso-epinotal impression deep, epinotum with sides flattish and converging up to the basal surface, declivous surface plane and marginate at the side; thorax in side view forming one general arc interrupted by promesonotal and a much deeper meso-epinotal impression, the epinotal declivous surface being flattened. Petiolar node high and scale-like, in side view with sides converging to a narrow, convex apex; viewed from in front the scale has convex sides broadest above the middle and a slightly angulate convex apex. Gaster from above elongate-ovate, evenly convex anteriorly, first and second segments approximately equal in length and forming about two-thirds of the gaster; sting of moderate dimensions and exserted. Legs long and slender, of moderate proportions.

Shining; head densely and finely, thorax and especially epinotum more sparsely but coarsely, gaster and appendages except mandibles finely, punctate; mandibles with a few piligerous punctures. Hairs largely absent except for a dense yellow tuft at the apex of the gaster; pubescence moderately fine and dense, especially on the antennae and legs, but sparsely on the gaster.

Uniformly bright ferruginous.

HOLOTYPE: One worker taken March 12, 1948, 5 miles west of Bangassou, Ubangi-Shari, French Equatorial Africa. The ant was in well-developed gallery forest extending up a watercourse from the Mbomu River and was beneath damp leaves on the forest floor.

The genotype, *A. silvestrii* Santschi, described from Nigeria in 1914, differs distinctly in having antennal scapes failing to reach the occiput, the epinotum more steeply declivous, the petiolar scale thicker, and in other ways.

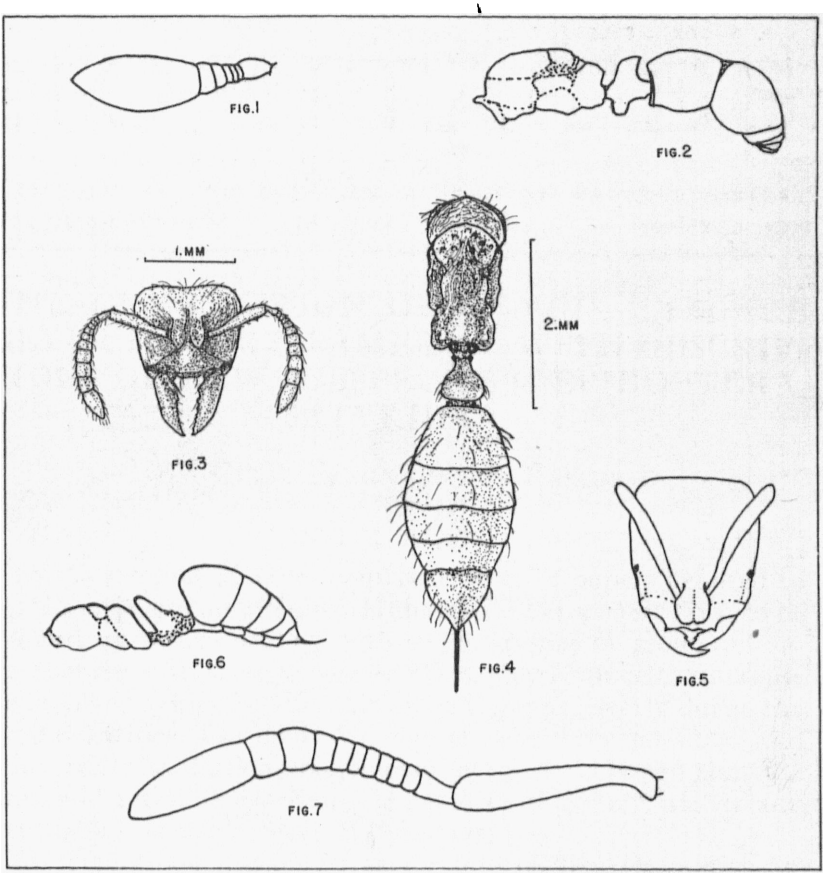

FIG. 1. Outline of antennal funiculus of female of *Discothyrea patrizzii*, new species.

FIG. 2. Lateral outline of thorax and abdomen of female of *Probolomyrmex parvus*, new species.

FIG. 3. Frontal view of head of worker of *Centromyrmex congolensis*, new species.

FIG. 4. Dorsal view of thorax and abdomen of worker of *Centromyrmex congolensis*, new species.

FIG. 5. Frontal outline of head of worker of *Asphinctopone lucidus*, new species.

FIG. 6. Lateral outline of thorax and abdomen of worker of *Asphinctopone lucidus*, new species.

FIG. 7. Outline of antenna of worker of *Asphinctopone lucidus*, new species.